

Electro Optical Tracking Systems

INSTRUMENTATION AND CAPABILITIES



The Electro Optical Tracking Systems Section develops, operates, maintains and sustains optical instrumentation at the Atlantic Test Ranges. This instrumentation is used to obtain Time, Space, Position Information (TSPI) data and documentary imaging data on manned and unmanned aircraft, weapon and ship system testing. ATR uses fixed and mobile assets in the visible and infrared (IR) spectrums locally, at remote locations and aboard ships and provides precision metrology and geodetic survey services, both locally and at remote locations.

IMAGING SYSTEMS

The core of optical tracking is imaging. A variety of imaging systems – from 30 frames per second (fps) to 500 fps and from visible to infrared (IR) – are employed to provide time-synchronized imaging data or documentary footage of a test event. Fixed, surveyed camera arrays can provide TSPI data of a particular target, or single- or multi-camera video systems can provide documentation of a test event. Imaging systems can be deployed anywhere in the field, including aboard ships and boats, to display and record test events.

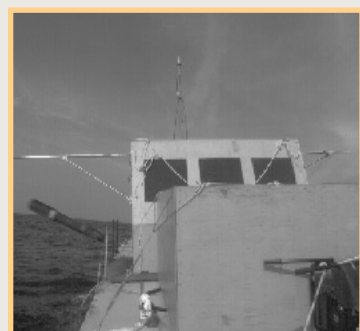
Time-tagged standard video systems can provide footage from the visible to the near- and mid-wave IR spectrums. Near-IR sensors can detect laser emissions for designating, and mid-wave IR sensors can provide imaging in poor visibility, or of test phenomenon outside the visible spectrum. High-speed, high-resolution digital imaging systems provide time-tagged, high-frame-rate imagery of test events for engineering analysis and reporting. Camera systems are capable of full-frame imaging up to 500 fps, and can be deployed to any location to provide TSPI data or document a test event for qualitative analysis.



High-speed digital imaging of F-18 E/F arrested landing



High-speed digital cameras installed on an aircraft carrier



High-speed digital imaging of a Hellfire missile impact

FOR MORE INFORMATION

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VIDEO CONTROL ROOM

The ATR Video Control Room performs a variety of functions and provides capabilities to the test range and its customers. Video systems provide video routing, display, control, distribution, recording and editing of live and recorded video sources. Multiple video sources from around ATR are received and processed, including video from the Kineto-Tracking Mount and theodolite tracking systems, as well as radar and telemetry instrumentation systems. Video feeds from remote sources, such as offshore operations at Wallops Island, are also received, routed, displayed and recorded.

There is also a separate, secure video capability if a test requires the handling of secure video feeds from a test platform or instrumentation source. Four digital editing suites are available to assemble test footage immediately after a test flight, or to edit a large volume of footage from a remote deployment and produce a finished product for the customer. There is a separate editing system for processing secure video. Other services include dubbing, media transfer, editing, and final assembly and transfer to tape, CD or DVD.



Video Control Room

GEOMATICS & METROLOGY

ATR provides 3-space measurement services ranging from precision localized industrial measurements to those on a global scale.

Geodetic surveying capabilities employ dual-frequency Global Positioning System (GPS) receivers, geodetic theodolites and automatic levels. These survey systems precisely locate instrumentation, calibration and target points for test support.

Metrological surveying capabilities include the measurement and modeling of aircraft, weapons and complex surfaces and objects that are under test. Coupled with spatial analysis software, metrological measurements are derived from articulated, temperature-compensated, mechanical measurement arms, theodolites and interferometer-based laser trackers.



Geomatics & Metrology survey of ATR instrumentation sites



Geomatics & Metrology surveys



P-3 nose cone modeling with laser arm